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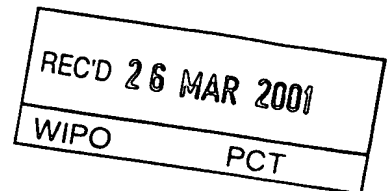
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## PATENT COOPERATION TREATY

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## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

14

Applicant's or agent's file reference <n>1	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/ES99/00372	International filing date (day/month/year) 19/11/1999	Priority date (day/month/year) 20/11/1998
International Patent Classification (IPC) or national classification and IPC H04H9/00		
Applicant GLOBAL STANDARDS, S.L.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 9 sheets, including this cover sheet.

- ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 3 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☒ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☒ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand  19/06/2000	Date of completion of this report  22.03.2001
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer  Willems, B  Telephone No. +49 89 2399 8954 

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/ES99/00372

**I. Basis of the report**

1. This report has been drawn on the basis of *(substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments (Rules 70.16 and 70.17).):*

**Description, pages:**

1-16 as originally filed

**Claims, No.:**

1-14 with telefax of 16/01/2001

**Drawings, sheets:**

1/6-6/6 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: English , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).  
☐ the language of publication of the international application (under Rule 48.3(b)).  
☒ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority in written form.  
☐ furnished subsequently to this Authority in computer readable form.  
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.  
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:  
☐ the claims, Nos.:

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☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability**

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

☐ the entire international application.

☒ claims Nos. 4.

because:

☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (*specify*):

☒ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. 4 are so unclear that no meaningful opinion could be formed (*specify*):  
**see separate sheet**

☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.

☐ no international search report has been established for the said claims Nos. .

2. A meaningful international preliminary examination report cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

☐ the written form has not been furnished or does not comply with the standard.

☐ the computer readable form has not been furnished or does not comply with the standard.

**IV. Lack of unity of invention**

1. In response to the invitation to restrict or pay additional fees the applicant has:

☒ restricted the claims.

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- ☐ paid additional fees.
- ☐ paid additional fees under protest.
- ☐ neither restricted nor paid additional fees.
2. ☐ This Authority found that the requirement of unity of invention is not complied and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is
- ☐ complied with.
- ☒ not complied with for the following reasons:  
**see separate sheet**
4. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report:
- ☒ all parts.
- ☐ the parts relating to claims Nos. .

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes:	Claims 2, 3, 5, 6, 7, 8, 9, 12, 13, 14
	No:	Claims 1, 10, 11
Inventive step (IS)	Yes:	Claims
	No:	Claims 2, 3, 5, 6, 7, 8, 9, 12, 13, 14
Industrial applicability (IA)	Yes:	Claims 1 - 14
	No:	Claims

2. Citations and explanations  
**see separate sheet**

**VII. Certain defects in the international application**

The following defects in the form or contents of the international application have been noted:  
**see separate sheet**

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EXAMINATION REPORT - SEPARATE SHEET**

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**Re Item III**

**Non-establishment of opinion with regard to novelty, inventive step and industrial applicability**

The syntax of claim 4 does not allow an examination of the claim.

**Re Item IV**

**Lack of unity of invention**

1. Cited document:

D2 = EP-A-0 479 613

Document D2 was not cited in the international search report. A copy of the document is appended hereto.

2. The separate inventions/groups of invention are:

Group 1: claims 1 - 5

Group 2: claims 6 - 9

Group 3: claims 10 - 12

Group 4: claims 13, 14

Claims 1 to 5 specify a radio receiver with a PLL that can only be programmed to "certain predetermined counting values among the whole values contained in each given band".

Claims 6 to 9 specify a radio receiver with a set of inductive or capacitive impedances for adjusting the bandpass for a signal and for adjusting a local oscillator frequency, a selector and a fine tuning circuit.

Claims 10 to 12 specify a radio receiver with a PLL and registers for storing codes identifying radio stations/chains.

Claims 13 and 14 specify a digital radio receiver with registers for storing codes identifying some radio stations/chains.

In the declaration under Article 19 the applicant argues that the difference between the claimed subject-matter and the prior art is that in the latter the receiver can always be tuned to any station in the dial. However, document D2 discloses an RDS receiver setting a forbidden flag to predefined stored AF data, stopping the receiver from being tuned to the corresponding frequencies (table 1, page 4, lines 25 to 56).

Thus, the claims of groups 1, 2, 3 and 4 are not linked by a common inventive concept.

**Re Item V**

**Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Cited document:

D1 = US-A-4 004 229

D2 = EP-A-0 479 613

Documents D1 and D2 were not cited in the international search report. Copies of the documents are appended hereto.

2. The subject-matter of claim 1 lacks novelty with respect to the disclosure of document D2. Therefore, claim 1 does not meet the requirements of Article 33(2) PCT.

Document D2 discloses a radio receiver with a PLL (fig.1), a programmable frequency divider (page 3, line 30), the dividing ratio of which is controlled by a

controller for providing the tuning operation (page 3, lines 30 - 31). The controller contains an AF memory for storing data relating to the broadcasting stations in contact (page 3, lines 36 - 37). The data stored in the AF memory sets a frequency divisional ratio for the PLL circuit (page 4, lines 31 - 32). A forbidden flag can be stored together with the frequency data in the AF memory, preventing the receiver from being tuned to the corresponding frequency (table 1, page 4 lines 25 - 57).

Thus, the combination of features of claim 1 is known from the disclosure of document D1.

3. The subject-matter of claims 2, 3 and 5 lacks an inventive step with respect to the disclosure of document D2. Therefore, claims 2, 3 and 5 do not meet the requirements of Article 33(3) PCT.

The additional features of claim 2 are rendered obvious by the AF memory known from document D2.

The additional features of claim 3 are rendered obvious by the use of the forbidden flag stored in the AF memory known from document D2.

Claim 5 further specifies an obvious design detail of a radio receiver.

4. The subject-matter of claim 6 lacks an inventive step with respect to the disclosures of documents D1 and D2. Therefore, claim 6 does not meet the requirements of Article 33(3) PCT.

Document D1 discloses a radio receiver comprising a plurality of inductive and capacitive impedances (see figure 4) allowing the user to tune the radio receiver to one of a plurality of predetermined impedances.

In the reply dated 16.01.01, the applicant argues that the problem solved by document D1 (miniaturizing of a receiver) differs from the problem underlying the



present alleged invention (inhibiting tuning to certain frequencies).

However, inhibiting a radio receiver from tuning to certain frequencies is known from document D2. Document D1 discloses an obvious technical alternative to a programmable frequency divider for inhibiting tuning (or allowing only a limited number of frequencies to be tuned to).

Thus, the subject-matter of claim 6 is rendered obvious by the disclosure of documents D1 and D2.

5. The subject-matter of claims 7 to 9 lacks an inventive step with respect to the disclosure of documents D1 and D2. Therefore, claims 7 to 9 do not meet the requirements of Article 33(3) PCT.

Claims 7 and 9 further specify obvious design details of a radio receiver.

The additional feature of claim 8 is rendered obvious by the disclosure of document D2, figure 2.

6. The subject-matter of claims 10 and 11 lacks novelty with respect to the disclosure of document D2. Therefore, claims 10 and 11 do not meet the requirements of Article 33(2) PCT.

Document D2 discloses an RDS receiver comprising a PLL (fig.1), an RDS decoder (fig. 1), a memory for storing codes identifying radio stations/chains (AF memory), a programmable frequency divider (page 3, line 30), the dividing ratio of which is controlled by a controller for providing the tuning operation (page 3, lines 30 - 31). The controller contains an AF memory for storing data relating to the broadcasting stations in contact (page 3, lines 36 - 37). The data stored in the AF memory sets a frequency divisional ratio for the PLL circuit (page 4, lines 31 - 32). A forbidden flag is stored together with the frequency data in the AF memory when the PI code of the AF station is not the same as the data stored in the AF memory, preventing the receiver from being tuned to stations with a different PI

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code (table 1, page 4 lines 25 - 57).

Thus, the combination of features of claims 10 and 11 is known from document D2.

7. The subject-matter of claim 12 lacks an inventive step with respect to the disclosure of document D2. Therefore, claim 12 does not meet the requirements of Article 33(3) PCT.

Claim 12 specifies a broadcast standard equivalent to the standard specified in claim 11.

8. The subject-matter of claims 13 and 14 lacks an inventive step with respect to the disclosure of document D2. Therefore, claims 13 and 14 do not meet the requirements of Article 33(3) PCT.

Claims 13 and 14 specify obvious features of a known Eureka-147 receiver to inhibit the latter from tuning to given frequencies.

**Re Item VII**

**Certain defects in the international application**

1. Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in document D2 is not mentioned in the description, nor is this document identified therein.
2. The features of the claims are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).

**MODIFIED CLAIMS .-**

1. Radiophonic audience loyalty-generating and pick-up device consisting in a radio receiver intended for reception into commercial broadcasting frequency bands comprising a PLL (Phase Locked Loop) frequency synthesizer for the local oscillator. The said receiver further comprises a frequency divider that can only be programmed to certain predetermined counting values among the whole values contained in each given band, so that the receiver can only be tuned to the frequencies corresponding to the said predetermined counting values.
2. Radiophonic audience loyalty-generating and pick-up device according to claim 1, further comprising some paired permanent registers for storing the counting values to be introduced in the programmable divider of the PLL loop and an identification of the frequency band to which each predetermined frequency belongs to, and further comprising a selecting device controlled by the radio listener for activating a pair of registers. Each position of the said selection device corresponding to the tuning of one of the said predetermined frequencies.
3. Radiophonic audience loyalty-generating and pick-up device according to claim 1, further comprising tuning controls, a register matrix and a tuning controller. The said register matrix stores the counting values that are not allowed to the frequency divider of the said PLL loop, each one corresponding to an excluded frequency; also a kind of indication referring to the related band to which each excluded frequency belongs to is stored for each counting value, if not all the excluded frequencies belong to the same band. When a frequency is demanded from the tuning controls, the said tuning controller firstly compares that required frequency - in its related band - with those frequencies corresponding to counting values stored in the said register matrix, so that only non excluded frequencies are allowed for tuning.
4. Radiophonic audience loyalty-generating and pick-up device according to claim 1, further comprising tuning controls and because the programmable divider of the PLL loop further comprises a decoder for avoiding some counting values among the whole values contained in each given band.
5. Radiophonic audience loyalty-generating and pick-up device according to claims 2, 3 or 4, further comprising an analog to digital converter, a signal processor for extracting information coded accordingly to IBOC/IBAC digital radio broadcasting systems, a digital to analog converter, an audio decoder and a switch for selecting between analog program and digital program.
6. Radiophonic audience loyalty-generating and pick-up device consisting in a radio receiver intended for reception into commercial broadcasting frequency bands comprising a set of inductive or capacitive impedances for adjusting the bandpass for the radiofrequency signal, another set of inductive or capacitive impedances for adjusting the local oscillator frequency, a selector controlled by the radio listener and a fine tuning circuit. Each position of the selec-

tor corresponds to the tuning of a predetermined frequency, so that the receiver can only be tuned to one of these predetermined frequencies.

7. Radiophonic audience loyalty-generating and pick-up device according to claim 6 in which the fine tuning circuit has got an extended adjusting range in order to allow to be tuned several adjacent predetermined frequencies.
8. Radiophonic audience loyalty-generating and pick-up device according to claim 6 in which the radiofrequency amplifier bandpass is adjusted for receiving a single predetermined frequency and in which the local oscillator is made upon a resonator manufactured for oscillating at the fixed frequency needed in the local oscillator in order the said predetermined frequency to be tuned at the receiver.
9. Radiophonic audience loyalty-generating and pick-up device according to claims 7 or 8, further comprising an analog to digital converter, a signal processor for extracting information coded accordingly to IBOC/TBAC digital radio broadcasting systems, an audio decoder, a digital to analog converter and a switch for selecting between analog program and digital program.
10. Radiophonic audience loyalty-generating and pick-up device consisting in a radio receiver intended for reception into commercial broadcasting frequency bands comprising a PLL (Phase Locked Loop) frequency synthesizer for the local oscillator. The said receiver further comprises a circuit for decoding tuning useful information, some permanent registers for storing codes identifying radio stations/chains, a sweep generator for the tuning frequency and a selector device controlled by the radio listener for determining the active register among the said registers. Scan is stopped when the said decoder finds a radio station transmitting the same code stored into the said active register. Thus, the receiver can only be tuned to one of these predetermined radio stations/chains.
11. Radiophonic audience loyalty-generating and pick-up device according to claim 10 in which the circuit for decoding information may perform picking up and decoding information according to the RDS system.
12. Radiophonic audience loyalty-generating and pick-up device according to claim 10 in which the circuit for decoding information may perform picking up and decoding information according to the RBDS system.
13. Radiophonic audience loyalty-generating and pick-up device made upon a digital radio broadcasting receiver according to Eureka-147 digital radio broadcasting standard further comprising several permanent registers for storing the codes which identify some radio stations/chains and a selector device controlled by the radio listener for determining the active register among the said registers, thus fixing the program being received, so that the receiver can only be tuned to one of these predetermined radio stations/chains, as defined by the said codes.

14. Radiophonic audience loyalty-generating and pick-up device according to claim 13 further comprising a Program Associated Data (PAD) decoder circuit and a sweep generator for scanning through the tuning frequency and through the programs included in each frequency multiplex. By means of the said sweep generator, the receiver scans the digital broadcasting dial and the programs contained in each frequency multiplex, and by means of the said decoder circuit detects the predetermined radio stations/channels, thus stopping the sweep at a radio station/channel owning the said code that is contained into the said register that has been activated by the said selector device controlled by the radio listener, so that the receiver can only be tuned to one of these predetermined radio stations/channels.

Replaced by  
art. 34 Amendment

# MODIFIED CLAIMS (Art. 19).-

1. Radiophonic audience loyalty-generating and pick-up device consisting in a radio receiver intended for reception into commercial broadcasting frequency bands comprising a PLL (Phase Locked Loop) frequency synthesizer for the local oscillator. The said receiver further  
5 comprises a frequency divider that can only be programmed to certain predetermined counting values among the whole values contained in each given band, so that the receiver can only be tuned to the frequencies corresponding to the said predetermined counting values.
2. Radiophonic audience loyalty-generating and pick-up device according to claim 1, further comprising some paired permanent registers for storing the counting values to be introduced  
10 in the programmable divider of the PLL loop and an identification of the frequency band to which each predetermined frequency belongs to, and further comprising a selecting device controlled by the radio listener for activating a pair of registers. Each position of the said selection device corresponding to the tuning of one of the said predetermined frequencies.
3. Radiophonic audience loyalty-generating and pick-up device according to claim 1, further  
15 comprising tuning controls, a register matrix and a tuning controller. The said register matrix stores the counting values that are not allowed to the frequency divider of the said PLL loop, each one corresponding to an excluded frequency; also a kind of indication referring to the related band to which each excluded frequency belongs to is stored for each counting value, if not all the excluded frequencies belong to the same band. When a frequency is demanded  
20 from the tuning controls, the said tuning controller firstly compares that required frequency – in its related band - with those frequencies corresponding to counting values stored in the said register matrix, so that only non excluded frequencies are allowed for tuning.
4. Radiophonic audience loyalty-generating and pick-up device according to claim 1, further  
25 comprising tuning controls and because the programmable divider of the PLL loop further comprises a decoder for avoiding some counting values among the whole values contained in each given band.
5. Radiophonic audience loyalty-generating and pick-up device according to claims 2, 3 or 4,  
30 further comprising an analog to digital converter, a signal processor for extracting information coded accordingly to IBOC/IBAC digital radio broadcasting systems, a digital to analog converter, an audio decoder and a switch for selecting between analog program and digital program.
6. Radiophonic audience loyalty-generating and pick-up device consisting in a radio receiver intended for reception into commercial broadcasting frequency bands comprising a set of inductive or capacitive impedances for adjusting the bandpass for the radiofrequency signal,  
35 another set of inductive or capacitive impedances for adjusting the local oscillator frequency, a selector controlled by the radio listener and a fine tuning circuit.

7. Radiophonic audience loyalty-generating and pick-up device according to claim 6 in which the fine tuning circuit has got an extended adjusting range in order to allow to be tuned several adjacent predetermined frequencies.
8. Radiophonic audience loyalty-generating and pick-up device according to claim 6 in which  
5 the radiofrequency amplifier bandpass is adjusted for receiving a single predetermined frequency and in which the local oscillator is made upon a resonator manufactured for oscillating at the fixed frequency needed in the local oscillator in order the said predetermined frequency to be tuned at the receiver.
9. Radiophonic audience loyalty-generating and pick-up device according to claims 7 or 8, further  
10 comprising an analog to digital converter, a signal processor for extracting information coded accordingly to IBOC/IBAC digital radio broadcasting systems, an audio decoder, a digital to analog converter and a switch for selecting between analog program and digital program.
10. Radiophonic audience loyalty-generating and pick-up device consisting in a radio receiver  
15 intended for reception into commercial broadcasting frequency bands comprising a PLL (Phase Locked Loop) frequency synthesizer for the local oscillator. The said receiver further comprises a circuit for decoding tuning useful information, some permanent registers for storing codes identifying radio stations/chains, a sweep generator for the tuning frequency and a selector device controlled by the radio listener for determining the active register  
20 among the said registers.
11. Radiophonic audience loyalty-generating and pick-up device according to claim 10 in which the circuit for decoding information may perform picking up and decoding information according to the RDS system.
12. Radiophonic audience loyalty-generating and pick-up device according to claim 10 in which  
25 the circuit for decoding information may perform picking up and decoding information according to the RBDS system.
13. Radiophonic audience loyalty-generating and pick-up device made upon a digital radio broadcasting receiver according to Eureka-147 digital radio broadcasting standard further comprising several permanent registers for storing the codes which identify some radio stations/chains and a selector device controlled by the radio listener for determining the active  
30 register among the said registers, thus fixing the program being received.
14. Radiophonic audience loyalty-generating and pick-up device according to claim 13 further comprising a Program Associated Data (PAD) decoder circuit and a sweep generator for scanning through the tuning frequency and through the programs included in each frequency  
35 multiplex.

## DECLARATION UNDER ARTICLE 19

In the five patents referred by the examiner as Relevant Documents several inventions are described that share with the proposed invention the structure of PLL radio broadcasting receiver comprising pretunes (all of it belongs to the known state of the art). In all the mentioned inventions the said pretunes are intended for easing the tuning effort to the radio listener when desired to be tuned some stations complying with certain requisites. But the receiver can always be tuned to any station in the dial. This is a main difference compared to the proposed invention, as it is repeatedly explained in the description. Claim 1 has been changed, in order to include explicitly this difference into the characterizing part.

(X) **GB 2 289 585 A:** It describes an invention intended for short wave receivers. Short waves are transmitted all over the world involving the ionosphere and may be much disturbed in their propagation, which greatly depends on the hour of the day and on the world zone in which is located the receiver. Some broadcasters send the same radio signal at different frequencies, in order their emissions could always be received almost anywhere in at least one frequency. The invention adds a real time clock and means for specifying the time difference between local time and GMT time reference. Also there are some pretunes for choosing the frequency for best reception of the required station, depending upon the world zone and the hour of the day. Consequently tuning is simplified for the radio listener, who otherwise should use tables for finding the recommended frequency for listening to a particular station as a function of the hour of the day and of the geographic position.

(X) **EP 0 760 557 A1:** The receiver comprises an automatic system known in the state of the art intended for: scanning through the band, detecting the best signal stations and storing them into pretuning controls. The invention comprise an intermediate buffer for easing the radio listener making interchanges between registers, because the first arrangement of pretunes corresponds to increasing frequencies, instead of being ordered by the radio listener preferred stations.

(X) **EP 0 513 477 A2:** The inventor states that the stations are specialized in different types of programs (for example jazz, rock & roll, voice, etc.). For best results each station requires a particular setting for the audio amplifier equalizer. The invention propose a way for associating the equalizer settings to each frequency pretuned by the radio listener, in order the equalizer be correspondingly adjusted each time a pretuned frequency is selected.

(A) **EP 0 736 985 A2:** The receiver comprises a digital data decoder for extracting data sent with the FM signal, using a system known in the state of the art. As most radio stations do not include additional data to their signal, the inventor proposes a device for searching among those stations that send additional information over the FM band, then storing them into some pretune controls. This way the radio listener may choose easily an station that sends additional data together with the FM signal.

(A) **US 4 344 187 A:** The invention consists in a system intended for keeping best tuned the receiver, correcting slight drifts that can arise. It also includes a conventional pretunes system.



## **MODIFIED CLAIMS.-**

1. (Amended). Radiophonic audience loyalty-generating and pick-up device consisting in a radio receiver intended for reception into commercial broadcasting frequency bands comprising a PLL (Phase Locked Loop) frequency synthesizer for the local oscillator. The said receiver further comprises a frequency divider that can only be programmed to certain predetermined counting values among the whole values contained in each given so that the receiver can only be tuned to the frequencies corresponding to the said predetermined counting values.
2. Radiophonic audience loyalty-generating and pick-up device according to claim 1, further comprising some paired permanent registers for storing the counting values to be introduced in the programmable divider of the PLL loop and an identification of the frequency band to which each predetermined frequency belongs to, and further comprising a selecting device controlled by the radio listener for activating a pair of registers. Each position of the said selection device corresponding to the tuning of one of the said predetermined frequencies.
3. Radiophonic audience loyalty-generating and pick-up device according to claim 1, further comprising tuning controls, a register matrix and a tuning controller. The said register matrix stores the counting values that are not allowed to the frequency divider of the said PLL loop, each one corresponding to an excluded frequency; also a kind of indication referring to the related band to which each excluded frequency belongs to is stored for each counting value, if not all the excluded frequencies belong to the same band. When a frequency is demanded from the tuning controls, the said tuning controller firstly compares that required frequency – in its related band - with those frequencies corresponding to counting values stored in the said register matrix, so that only non excluded frequencies are allowed for tuning.
4. (Amended). Radiophonic audience loyalty-generating and pick-up device according to claim 1, further comprising tuning controls, ~~and because in which the truth table of the decoder that commands~~ the programmable divider of the PLL loop ~~further comprises a decoder has been designed~~ for avoiding some counting values among the whole values contained in each given band, so that the device can only be tuned to some predetermined frequencies of the whole included in each band.
5. Radiophonic audience loyalty-generating and pick-up device according to claims 2, 3 or 4, further comprising an analog to digital converter, a signal processor for extracting information coded accordingly to IBOC/IBAC digital radio broadcasting systems, a digital to analog converter, an audio decoder and a switch for selecting between analog program and digital program.
6. (Amended). Radiophonic audience loyalty-generating and pick-up device consisting in a radio receiver intended for reception into commercial broadcasting frequency bands comprising a set of inductive or capacitive impedances for adjusting the bandpass for the radiofre-

quency signal, another set of inductive or capacitive impedances for adjusting the local oscillator frequency, a selector controlled by the radio listener and a fine tuning circuit. Each position of the selector corresponds to the tuning of a predetermined frequency, so that the receiver can only be tuned to one of these predetermined frequencies.

- 5 7. Radiophonic audience loyalty-generating and pick-up device according to claim 6 in which the fine tuning circuit has got an extended adjusting range in order to allow to be tuned several adjacent predetermined frequencies.
8. Radiophonic audience loyalty-generating and pick-up device according to claim 6 in which the radiofrequency amplifier bandpass is adjusted for receiving a single predetermined frequency and in which the local oscillator is made upon a resonator manufactured for oscillating at the fixed frequency needed in the local oscillator in order the said predetermined frequency to be tuned at the receiver.
- 10 9. Radiophonic audience loyalty-generating and pick-up device according to claims 7 or 8, further comprising an analog to digital converter, a signal processor for extracting information coded accordingly to IBOC/IBAC digital radio broadcasting systems, an audio decoder, a digital to analog converter and a switch for selecting between analog program and digital program.
- 15 10. (Amended). Radiophonic audience loyalty-generating and pick-up device consisting in a radio receiver intended for reception into commercial broadcasting frequency bands comprising a PLL (Phase Locked Loop) frequency synthesizer for the local oscillator. The said receiver further comprises a circuit for decoding tuning useful information, some permanent registers for storing codes identifying radio stations/chains, a sweep generator for the tuning frequency and a selector device controlled by the radio listener for determining the active register among the said registers. Scan is stopped when the said decoder finds a radio station transmitting the same code stored into the said active register. Thus, the receiver can only be
- 20 tuned to one of these predetermined radio stations/chains.
- 25 11. Radiophonic audience loyalty-generating and pick-up device according to claim 10 in which the circuit for decoding information may perform picking up and decoding information according to the RDS system.
- 30 12. Radiophonic audience loyalty-generating and pick-up device according to claim 10 in which the circuit for decoding information may perform picking up and decoding information according to the RBDS system.
- 35 13. (Amended). Radiophonic audience loyalty-generating and pick-up device made upon a digital radio broadcasting receiver according to Eureka-147 digital radio broadcasting standard further comprising several permanent registers for storing the codes which identify some radio stations/chains and a selector device controlled by the radio listener for determining the active register among the said registers, thus fixing the program being received, so that the

receiver can only be tuned to one of these predetermined radio stations/chains, as defined by the said codes.

14. (Amended). Radiophonic audience loyalty-generating and pick-up device according to claim 13 further comprising a Program Associated Data (PAD) decoder circuit and a sweep generator for scanning through the tuning frequency and through the programs included in each frequency multiplex. By means of the said sweep generator, the receiver scans the digital broadcasting dial and the programs contained in each frequency multiplex, and by means of the said decoder circuit detects the predetermined radio stations/chains, thus stopping the sweep at a radio station/chain owning the said code that is contained into the said register that has been activated by the said selector device controlled by the radio listener, so that the receiver can only be tuned to one of these predetermined radio stations/chains.

replaced by  
Art. 34  
Amendment

CLAIMS.-

1. Radiophonic audience loyalty-generating and pick-up device consisting in a radio receiver intended for reception into commercial broadcasting frequency bands comprising a PLL (Phase Locked Loop) frequency synthesizer for the local oscillator. The said receiver further  
5 comprises a frequency divider that can only be programmed to certain predetermined counting values among the whole values contained in each given band.
2. Radiophonic audience loyalty-generating and pick-up device according to claim 1, further comprising some paired permanent registers for storing the counting values to be introduced in the programmable divider of the PLL loop and an identification of the frequency band to  
10 which each predetermined frequency belongs to, and further comprising a selecting device controlled by the radio listener for activating a pair of registers. Each position of the said selection device corresponding to the tuning of one of the said predetermined frequencies.
3. Radiophonic audience loyalty-generating and pick-up device according to claim 1, further comprising tuning controls, a register matrix and a tuning controller. The said register matrix  
15 stores the counting values that are not allowed to the frequency divider of the said PLL loop, each one corresponding to an excluded frequency; also a kind of indication referring to the related band to which each excluded frequency belongs to is stored for each counting value, if not all the excluded frequencies belong to the same band. When a frequency is demanded from the tuning controls, the said tuning controller firstly compares that required frequency –  
20 in its related band - with those frequencies corresponding to counting values stored in the said register matrix, so that only non excluded frequencies are allowed for tuning.
4. Radiophonic audience loyalty-generating and pick-up device according to claim 1, further comprising tuning controls and because the programmable divider of the PLL loop further comprises a decoder for avoiding some counting values among the whole values contained in  
25 each given band.
5. Radiophonic audience loyalty-generating and pick-up device according to claims 2, 3 or 4, further comprising an analog to digital converter, a signal processor for extracting information coded accordingly to IBOC/IBAC digital radio broadcasting systems, a digital to analog converter, an audio decoder and a switch for selecting between analog program and digital  
30 program.
6. Radiophonic audience loyalty-generating and pick-up device consisting in a radio receiver intended for reception into commercial broadcasting frequency bands comprising a set of inductive or capacitive impedances for adjusting the bandpass for the radiofrequency signal, another set of inductive or capacitive impedances for adjusting the local oscillator frequency,  
35 a selector controlled by the radio listener and a fine tuning circuit.

7. Radiophonic audience loyalty-generating and pick-up device according to claim 6 in which the fine tuning circuit has got an extended adjusting range in order to allow to be tuned several adjacent predetermined frequencies.
8. Radiophonic audience loyalty-generating and pick-up device according to claim 6 in which  
5 the radiofrequency amplifier bandpass is adjusted for receiving a single predetermined frequency and in which the local oscillator is made upon a resonator manufactured for oscillating at the fixed frequency needed in the local oscillator in order the said predetermined frequency to be tuned at the receiver.
9. Radiophonic audience loyalty-generating and pick-up device according to claims 7 or 8, further comprising an analog to digital converter, a signal processor for extracting information  
10 coded accordingly to IBOC/IBAC digital radio broadcasting systems, an audio decoder, a digital to analog converter and a switch for selecting between analog program and digital program.
10. Radiophonic audience loyalty-generating and pick-up device consisting in a radio receiver  
15 intended for reception into commercial broadcasting frequency bands comprising a PLL (Phase Locked Loop) frequency synthesizer for the local oscillator. The said receiver further comprises a circuit for decoding tuning useful information, some permanent registers for storing codes identifying radio stations/chains, a sweep generator for the tuning frequency and a selector device controlled by the radio listener for determining the active register  
20 among the said registers.
11. Radiophonic audience loyalty-generating and pick-up device according to claim 10 in which the circuit for decoding information may perform picking up and decoding information according to the RDS system.
12. Radiophonic audience loyalty-generating and pick-up device according to claim 10 in which  
25 the circuit for decoding information may perform picking up and decoding information according to the RBDS system.
13. Radiophonic audience loyalty-generating and pick-up device made upon a digital radio broadcasting receiver according to Eureka-147 digital radio broadcasting standard further comprising several permanent registers for storing the codes which identify some radio stations/chains and a selector device controlled by the radio listener for determining the active  
30 register among the said registers, thus fixing the program being received.
14. Radiophonic audience loyalty-generating and pick-up device according to claim 13 further comprising a Program Associated Data (PAD) decoder circuit and a sweep generator for scanning through the tuning frequency and through the programs included in each frequency  
35 multiplex.